

REASONS FOR ALLOWANCE

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 8, 2008, has been entered.

2. Claims 31-39 and 42-60 are allowed. The following is an examiner's statement of reasons for allowance.

3. Regarding claim 31, the prior art fails to disclose or fairly suggest a method, including cutting away at least one cycle of alternating layers from a portion of the multilayer film stack so that the multilayer film stack, having said at least one cycle cut away, corrects a wavefront aberration of a wavefront phase of a light reflected by the multilayer film stack that would have been caused by the error of shape of the substrate if said at least one cycle of alternating layers were not cut away, in combination with all of the other limitations in the claim. Claims 32-36 are allowed by virtue of their dependency.

4. Regarding claim 37, the prior art fails to disclose or fairly suggest a method for forming an optical element that reflects radiation in a range from vacuum ultraviolet through X-ray, including the step of cutting away a portion of a correction film and a multilayer film stack in

Art Unit: 2882

accordance with an amount of adjustment of a wavefront phase of emerging rays, in combination with all of the other limitations in the claim.

5. Regarding claim 38, the prior art fails to disclose or fairly suggest a multilayer film reflection mirror that reflect radiation in a range from vacuum ultraviolet through X-ray, including at least one pair of layers successively arranged from an outermost surface of the multilayer film having a predetermined portion in which material of the respective layers of the respective pair does not exist so that the respective layers are thereby non-uniform across the multilayer film, and so that the multilayer film thereby corrects a wavefront aberration of a wavefront phase of a light reflected by the multilayer film that would have been caused by the error of shape of the substrate if said at least one pair of layers successively arranged from the outermost surface of the multilayer film did not have said predetermined portion, in combination with all of the other limitations in the claim. Claims 39 and 42-47 are allowed by virtue of their dependency.

6. Regarding claim 48, the prior art fails to disclose or fairly suggest an exposure apparatus, including at least one repeated pair of layers successively arranged from an outermost surface of the multilayer film having a predetermined portion in which material of the respective layers does not exist so that the respective layers are thereby non-uniform across the multilayer film and so that the multilayer film thereby corrects a wavefront aberration of a wavefront phase of a light reflected by the multilayer film that would have been caused by the error of shape of the substrate if said at least one repeated pair of layers successively arranged from the outermost

Art Unit: 2882

surface of the multilayer film did not have said predetermined portion, in combination with all of the other limitations in the claim.

7. Regarding claim 49, the prior art fails to disclose or fairly suggest a method of manufacturing a multilayer film reflection mirror, including at least one pair of layers successively arranged from an outermost surface of the multilayer film having a predetermined portion in which material of the respective layers does not exist so that the respective layers are thereby non-uniform across the multilayer film, so that the multilayer film thereby corrects a wavefront aberration of a wavefront phase of a light reflected by the multilayer film that would have been caused by the error of shape of the substrate if said at least one pair of layers successively arranged from the outermost surface of the multilayer film did not have said predetermined portion, in combination with all of the other limitations in the claim. Claims 39 and 50-58 are allowed by virtue of their dependency.

8. Regarding claim 59, the prior art fails to disclose or fairly suggest an optical element, including wherein the correction film and the stack each have a cut away portion of the stack, so that the stack having said cut away portion corrects a wavefront aberration of a wavefront phase of a light reflected by the multilayer film that would have been caused by the error of shape of the substrate if the stack did not have said cut away portion, in combination with all of the other limitations in the claim. Claims 39 and 42-47 are allowed by virtue of their dependency.

Art Unit: 2882

9. Regarding claim 60, the prior art fails to disclose or fairly suggest a multilayer film reflection mirror, including at least one pair of layers successively arranged from an outermost surface of the multilayer film having a predetermined portion in which material of the respective layers of the respective pair does not exist so that the respective layers are thereby non-uniform across the multilayer film, and so that the multilayer film thereby corrects a wavefront aberration of a wavefront phase of a light reflected by the multilayer film that would have been caused by the error of shape of the substrate if said at least one pair of layers successively arranged from the outermost surface of the multilayer film did not have said predetermined portion., in combination with all of the other limitations in the claim.

10. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571)272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2882

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chih-Cheng Glen Kao/
Primary Examiner, Art Unit 2882